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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,771	01/30/2002	Yasuhiko Saito	8013-1004	4164

466 7590 12/08/2003

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EXAMINER

VERBRUGGE, KEVIN

ART UNIT	PAPER NUMBER
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2188

DATE MAILED: 12/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/058,771

Applicant(s)

SAITO ET AL.

Examiner

Kevin Verbrugge

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to because of presumably inadvertent errors.

In Fig. 2, in store queue 101, the second, third, and fourth occurrences of "store index A0" should be replaced with --store index A1--, --store index A2--, and --store index A3--, respectively in accordance with the specification at page 5, lines 13-17 and Fig. 11 in the priority document.

Fig. 14A should be relabeled as Fig. 15A.

Fig. 14B should be relabeled as Fig. 15B.

Fig. 15A should be relabeled as Fig. 14A.

Fig. 15B should be relabeled as Fig. 14B.

These changes are required in accordance with the specification at page 10, lines 9-23 and page 27, lines 7-21 and Figs. 9 and 10 in the priority document.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

A substitute specification including the claims is required pursuant to 37 CFR 1.125(a) because the quality of the text is poor. Not only is the text difficult to read in some portions, but the poor quality will certainly lead to errors in optical character recognition (OCR) should the application ever issue as a patent (OCR is used on allowed cases to create the final patent document).

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and (c)

At page 7, line 13, --if-- should be inserted after "Even" to correct the poor grammar.

### ***Claim Objections***

Claims 10, 11, 20, and 21 are objected to because of the following informalities:  
in line 4 in each claim, "of" should be replaced with --a-- to correct the poor grammar.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the specification in view of U.S. Patent 5,765,035 to Tran, who discloses a reorder buffer capable of detecting dependencies between accesses to a pair of caches.

Regarding claims 1, 4-12, and 15-21, in the specification at pages 1-7 and Figs. 1-5, Applicant discloses the admitted prior art (APA) device which includes the claimed comparator circuit and the claimed stalling circuit. In the APA device, however, the comparator does not compare the index and offset as claimed, but rather just the index. As taught by the Applicant, this leads to the unnecessary stalling of some instructions that have the same index as an instruction in the store queue but a different offset from that instruction with the matching index.

Applicant's invention eliminates these unnecessary stalls by comparing the index and the offset of incoming instructions to the instructions stored in the store queue. Only if they both match is a store performed.

Tran discloses a device in the analogous art of dependency checking and his device compares an instruction's index and offset as taught at column 3, lines 46-47 and column 15, lines 26-30. Furthermore, his device is concerned with dependencies and implements stalls to maintain correct instruction execution when dependencies exist (see abstract, column 3, line 27, column 12, lines 14-17, column 14, lines 21-29, and claims 2 and 10).

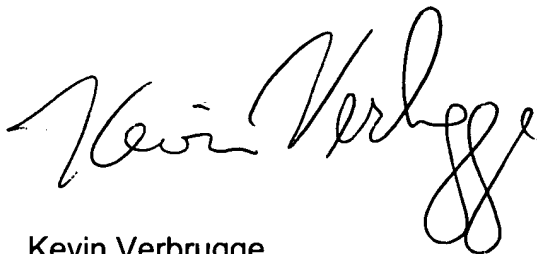
It would have been obvious to one of ordinary skill in the art at the time the invention was made to refine the APA device to also check the offset since Tran teaches that it was known in the art at the time to do so and since this would provide the enhanced operation of reducing unnecessary stalls due to instructions which had the same index but different offsets.

Regarding claims 2, 3, 13, and 14, as taught by Tran, both the index and the offset must match for a dependency problem to exist, as claimed.

### ***Conclusion***

Any inquiry concerning a communication from the Examiner should be directed to the Examiner by phone at (703) 308-6663.

Any response to this action should be labeled appropriately (serial number, Art Unit 2188, and After-Final, Official, or Draft) and mailed to Commissioner for Patents, Washington, D.C. 20231, faxed to (703) 872-9306, or delivered to Crystal Park 2, 2121 Crystal Drive, Arlington, VA, 4th Floor Receptionist.

A handwritten signature in black ink, appearing to read "Kevin Verbrugge". The signature is fluid and cursive, with the first name "Kevin" and last name "Verbrugge" clearly distinguishable.

Kevin Verbrugge  
Primary Examiner  
12/2/03